Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

## The Man of the Future.

MAN being, zoologically, the highest organism known, the question of his further evolution and its probable direction is one which is naturally of interest to the student of anthropology. Is the development of a higher species possible or probable?

In order to even partially answer this question we must first consider what would constitute perfection or an approach to it. We are met at the very threshold of the problem by the fact, apparent on every hand, that the human product of our present civilization is, in the vast majority of instances, a very unequally developed organism, physically and mentally: an asymmetrical creature, the victim, so to speak, of specialism of one kind or another; it may be of environment or of occupation, usually of both. Hence the necessarily great diversity of view as to what would be improvement in the race.

It is a self-evident fact that improvement of the individual means, in the long run, advancement of the race; but when we ask what constitutes individual improvement, we receive one answer from the sociologist, another from the political economist, a third from the athlete or artist, and still a different reply from the philosopher.

That an easily-governed and equably-tempered people are not necessarily of a high type of humanity is evident from the experience of China, where a population of 350,000,000 is governed by a standing army of only 80,000 and the simplest police regulations, — a state of affairs unparalleled in the history of the so-called civilized nations. The perfection of their civil service and the insignificant expense of state officials are also said to be marvellous in the light of our experience. This state of affairs has been attributed to the perfection of their social training system, but it seems to the writer also allowable to suppose that many centuries of low diet, with overcrowding and mental subjection, have largely eliminated that spirit of restlessness and opposition to authority so characteristic of western peoples.

The ideas of the gymnast or exponent of physical culture, and of the purely intellectual sophist, are equally at fault in the solution of our question of improvement of the race; for it is evident to all medical men, at least, that powerful muscles may be a source of vital weakness to their possessor by inducing heart strain, or by overtaxing the eliminative capacity of the kidneys and other depurative organs, in the disposal of the results, the ashes so to speak, of muscular combustion. And, again, even a powerful brain may be menaced in its integrity by a weak or diseased blood-vessel incapable of withstanding the pressure caused by high functional activity.

The zoologist, therefore, sees the true strength of the individual, the race, and the species in (1) their plasticity, i.e., adaptability or capacity for modification in response to changes of environment, provided this plasticity be not the cause of localized weaknesses; and (2) equilibrium of development, organic balance, so to speak, between the component parts of the animal.

The question has been asked, Would not the development of wings or other additional organs be an improvement in the species? The reply to this, on zoological principles, would be No. The addition of wings, for instance, would be a retrogression to a lower type; and if the wings were feathered, a still further retrogression. We must conclude, then, that wings are incompatible with progress, zoologically considered, all visions of angels to the contrary notwithstanding.

In fact it is difficult to foresee any structural change of plan that would be an improvement under our present environment.

While, therefore, we may anticipate an increase in the average perfection of parts, and consequently a more harmonious development of man's present plan of structure, we cannot rationally look for any radical change in the plan itself. Hence we may conclude, upon purely theoretical grounds, as well as zoological experience, that under present conditions man is, in his plan of structure, the highest type of animal that can be produced; and while this may seem to coincide with the philosophy of the fatalist, "whatever is, is right," it is nevertheless true.

Improvement in organic balance or correlation of organs, therefore, is the chief direction of advance possible, and this improvement may be favored by the avoidance of excessive specialism in environment and occupation, by which certain organs are overdeveloped, while others are dwarfed from disuse.

The ideal man is the perfectly balanced man, physically and mentally; neither an athlete, an intellectual giant, nor a zoological monstrosity, but a being harmoniously developed in all parts.

It may be objected that such an organism would, like the "one-hoss shay" of Dr. Holmes, go to pieces all at once. But would not this imply a useful capacity and activity up to a good old age, of which we have striking examples in the lives of Audubon, Jefferson, and Darwin, and be vastly preferable to a break at forty from some one weak organ?

The maxim, "A chain is only as strong as its weakest link," applies here as forcibly as it does in mechanics.

DR. F. W. LANGDON.

Cincinnati, O., Sept. 15.

## BOOK-REVIEWS.

*A History of Chemistry.* By ERNST VON MEYER. Translated by George M'Gowan. New York and London, Macmillan. 8°. $4.50.

THERE have not been many histories of chemistry written, the best known being probably that of Kopp, which began to appear nearly fifty years ago. The same is true of physics, the only one that now occurs to us being that of Poggendorf, yet it has often seemed that it would be well for the student to be informed of the way by which the present state of science has been reached, yet it is but rarely that such information is imparted in lectures or in the class-room.

One reason for this may be in the worthlessness of what has gone before, which is strongly brought out in our author's treatment of alchemy. The benefits which accrued to chemistry during the centuries which were occupied by alchemists in the attempt to turn the baser metals into gold he estimates as very slight. It was but seldom that a discovery of technical value, like that of the making of porcelain, sprang from alchemistic work. On the other hand, positive harm was done by the tendency to mysticism among many of the workers, which resulted frequently in deliberate fraud.

As man seems really to care first for wealth and then for health, — at least he will give up the latter in pursuit of the former, — so after the attempt to gain riches through chemical knowledge had proved futile, attention was turned by investigators — and these of a higher class of intelligence than the earlier alchemists — to a development of the knowledge of drugs and their action on the human system, and to this period a chapter is devoted.

One phenomenon which was evidently chemical in its nature — combustion — had always interested chemists, and gave rise to the phlogiston theory, which held sway from soon after the death of Boyle till the discovery of oxygen in 1774. This theoretical view of combustion had a great influence on the progress in the accumulation of chemical truths, and it may be that here again some would urge that little attention need now be paid to these antiquated doctrines. But it may be well for the wisest of the physicists and chemists of the present day to occasionally have it pointed out to them how essentially false doctrines can maintain themselves for considerable periods when once they have received the endorsement of men wise in their day and generation.

Chemistry, as we know it, came into full possession of its faculties with the beginning of the use of the balance and the discovery of oxygen. The systematization of the facts as they were discovered was based, first, on the atomic theory of Dalton, and later on the doctrine of valency as developed during the past thirty years. All this development of the science is described historically in the early chapters of the book before us.

The closing chapter is devoted to a special history of the various branches of chemistry, from Lavoisier to the present day. In this chapter are treated the history of analytical chemistry, and of pure chemistry, inorganic and organic, which naturally leads to a consideration of thermo-chemistry or of physical chemistry in general. Technical chemistry is not neglected, nor are physiological and agricultural, which offer as difficult problems as any in the whole science. A section of interest is devoted to the methods of chemical instruction, which are attracting much attention in Great Britain and Germany.

We believe Meyer's "History of Chemistry," standing as it does alone, should be much used by teachers and students.

*A Manual of the Steam Engine. Part I.: Structure and Theory.* By Robert H. Thurston. New York, Wiley. 8°. $7.50.

It has been a common slur at the thermo-organic theory of heat-engines that it has led to little of the improvement in their construction. It is well known that the thermo-dynamics of the steam-engine was not understood, or at least generally recognized, till the best part of a century had passed after the first introduction of the engine as a practical motive power. But even then the theory applied only to an ideal engine — an engine consisting of a few diagramatic lines called a "hot body," a "cold body," etc., and known as the Carnot engine. That this theoretical explanation of the working of the heat engine is of the greatest interest, and has certainly aided materially in clearing engineers' ideas as to the possibilities of the heat-engine, cannot be denied; but there are so many differences between the Carnot engine and the steam-engine of practice that the improvement of the latter has been forced to depend on the "rule of thumb" for guidance.

Professor Thurston, in this book, makes an attempt to carry the theory forward a step and put it in such shape as to be applicable to the real engine. He does not maintain that this can as yet be done with perfect satisfaction, but only that sufficient knowledge of the various wastes of heat has been obtained to justify this treatise. The subject is still obscure, but it is believed that the provisional theory and purposed processes of computation will aid the engineer materially in his endeavor to anticipate the performance of any new engine, the design of which may be hand.

Cotterill's "The Steam-Engine considered as a Heat-Engine" was perhaps an earlier attempt in the same direction, and with the progress of experimental work at the numerous technical institutions the world over, modifications in Thurston's treatment must be called for.

This first part covers the structure and theory of the steam-engine; the second part will be devoted to the design, construction, and operation.

## AMONG THE PUBLISHERS.

A series of eight excellent views of the Leland Stanford, jun., University at Palo Alto, Cal., drawn by Hughson Hawley, is given in *Harper's Weekly* for Oct. 3.

— Messrs. Cassell & Co. announce: "Geometrical Drawing for Army Candidates," by H. T. Lilley, new and enlarged edition; "A First Book of Mechanics for Young Beginners," with numerous examples and answers, by the Rev. J. G. Easton, late scholar of St. John's College, Cambridge, formerly head master of the grammar school, Great Yarmouth; "Work," yearly volume, an illustrated magazine of practice and theory for all workmen, pro-

### Publications received at Editor's Office, Sept. 23–29.

Brooklyn Institute, Third Year-Book of the (1890–91). Brooklyn, Eagle Pr. 232 p. 12°.

Merrill, G. P. Stones for Building and Decoration. New York, Wiley. 453 p. 8°. $5.

Schuchhardt, C. Schliemann's Excavations: an Archæological and Historical Study. New York, Macmillan. 363 p. 8°. $4.

Smith, E. F., and Keller, H. F. Experiments Arranged for Students in General Chemistry. 2d ed. Philadelphia. Blakiston. 56 p. 8°.

Solms-Laubach, H. Graf zu, Fossil Botany. New York, Macmillan. 401 p. 8°. $4 50.

Thorne R. T. Diphtheria: Its Natural History and Prevention. London and New York, Macmillan. 266 p. 12°. $2.

PRACTICAL WORK
IN
ORGANIC CHEMISTRY.

By Frederick Wm. Streatfeild, with a Prefatory Notice by Prof. R. Meldola. 156 pages, with 35 illustrations, $1.25.

E. & F. H. SPON, 12 Cortlandt St., N. Y.

HANDBOOK OF METEOROLOGICAL TABLES.

By Asst. Prof. H. A. Hazen.
127 pp. 8°.

Professor Waldo says: "I heartily recommend them to all workers in meteorology, and do not see how any of our American meteorologists can afford to be without a copy."

Professor Symons of London says: "They are unquestionably valuable helps, which must be kept handy, and replaced when worn out."

*Price, postpaid, $1.*

N. D. C. HODGES, 47 Lafayette Pl., New York.

OF WHAT USE IS THAT PLANT?

You can find the answer in

SMITH'S "DICTIONARY OF ECONOMIC PLANTS."

Sent postaid on receipt of $2.80. Publisher's price, $3.50.

SCIENCE BOOK AGENCY,
47 Lafayette Place, New York

"The Week, one of the ablest papers on the continent." —*Descriptive America.*

THE WEEK,

*A Canadian Journal of Politics, Literature, Science and Art.*

PUBLISHED EVERY FRIDAY.

$3.00 per Year. $1.00 for Four Months.

THE WEEK has entered on its EIGHTH year of publication, greatly improved in every respect, rendering it more worthy the cordial support of every one interested in the maintenance of a first-class literary journal.

The independence in politics and criticism which has characterized THE WEEK ever since its first issue will be rigidly maintained; and unceasing efforts will be made to improve its literary character and increase its attractiveness as a journal for the cultured home. Many new and able writers are now, or have promised to become, contributors to its columns, and the constant aim of the Publisher will be to make THE WEEK fully equal to the best literary journals in Britain and the United States.

As heretofore, Prof. Goldwin Smith will, from time to time, contribute articles. London, Paris, Washington and Montreal letters from accomplished correspondents will appear at regular intervals. Special Ottawa Letters will appear during the sessions of Parliament.

THE WEEK being the same size as "Harper's Weekly," is the largest paper of its class on the continent.

SEND FOR FREE SAMPLE COPY.

C. BLACKETT ROBINSON, Publisher,
5 Jordan St., Toronto, Canada.

THE
AMERICAN GEOLOGIST FOR 1891
AND
BIEN'S NEW ATLAS OF THE METROPOLITAN DISTRICT,

will be given to **New Subscribers** to the Geologist for $25.00 (which is the regular price of the Atlas alone), if ordered through the Geologist.

For other premiums see the Geologist for Nov., Dec., and Jan. Address

THE GEOLOGICAL PUBLISHING COMPANY,
Minneapolis, Minn.

THE BOTANICAL GAZETTE.

A monthly illustrated journal of botany in all its departments.

25 cents a number, $2.50 a year.

Address PUBLISHERS BOTANICAL GAZETTE,
Crawfordsville, Ind.

Publications of the University of Pennsylvania.

SERIES IN

Philology, Literature and Archæology.

*Vol. I. now ready.*

1. Poetic and Verse Criticism of the Reign of Elizabeth. By Felix E. Schelling, A.M., Assistant Professor of English Literature. $1.00.
2. A Fragment of the Babylonian "Dibbarra" Epic. By Morris Jastrow, Jr., Ph.D., Professor of Arabic. 60 cents.
3. *a.* Πρός with the Accusative. *b.* Note on a Passage in the Antigone. By William A. Lamberton A.M., Professor of the Greek Language and Literature. 50 cents.
4. The Gambling Games of the Chinese in America. Fán tán and Pák kòp piú. By Stewart Culin, Secretary of the Museum of Archæology and Palæontology. 40 cents.

*In preparation.*

The Terrace at Persepolis. By Morton W. Easton, Ph.D., Professor of Comparative Philology.
An Aztec Manuscript. By Daniel G. Brinton, M.D., Professor of American Archæology and Linguistics.
A Monograph on the Tempest. By Horace Howard Furness, Ph.D., LL.D.
Recent Archæological Explorations in New Jersey. By Charles C. Abbott, M.D., Curator of the American Collections.
Archæological Notes in Northern Morocco. By Talcott Williams, A.M., Secretary of the Museum of Egyptian Antiquities.
*a.* On the Aristotelian Dative. *b.* On a Passage in Aristotle's Rhetoric. By William A. Lamberton, A.M., Professor of the Greek Language and Literature.
A Hebrew Bowl Inscription. By Morris Jastrow, Jr., Ph.D., Professor of Arabic.
The Life and Writings of George Gascoigne. By Felix E. Schelling, A.M., Assistant Professor of English Literature.

The Papers of this Series, prepared by Professors and others connected with the University of Pennsylvania, will take the form of Monographs on the subjects of Philology, Literature, and Archæology, whereof about 200 or 250 pages will form a volume.

The price to subscribers to the Series will be $1.50 per volume; to others than subscribers, $2.00 per volume.

Each Monograph, however, is complete in itself, and will be sold separately.

It is the intention of the University to issue these Monographs from time to time as they shall be prepared.

Each author assumes the responsibility of his own contribution.

N. D. C. HODGES,
47 Lafayette Place, New York, N. Y.

**BOOKS: How to get them.** If there is any Book or pamphlet that you want, write to the Science book Agency, 47 Lafayette Place, New York.